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McGee

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[54] **BABY BOTTLE WITH TWO SEPARATE FLUID CHAMBERS**

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[52] **U.S. Cl.** **215/11.1**; 215/6; 215/11.4; 215/11.6

[58] **Field of Search** 215/11.1, 11.4, 215/11.5, 6

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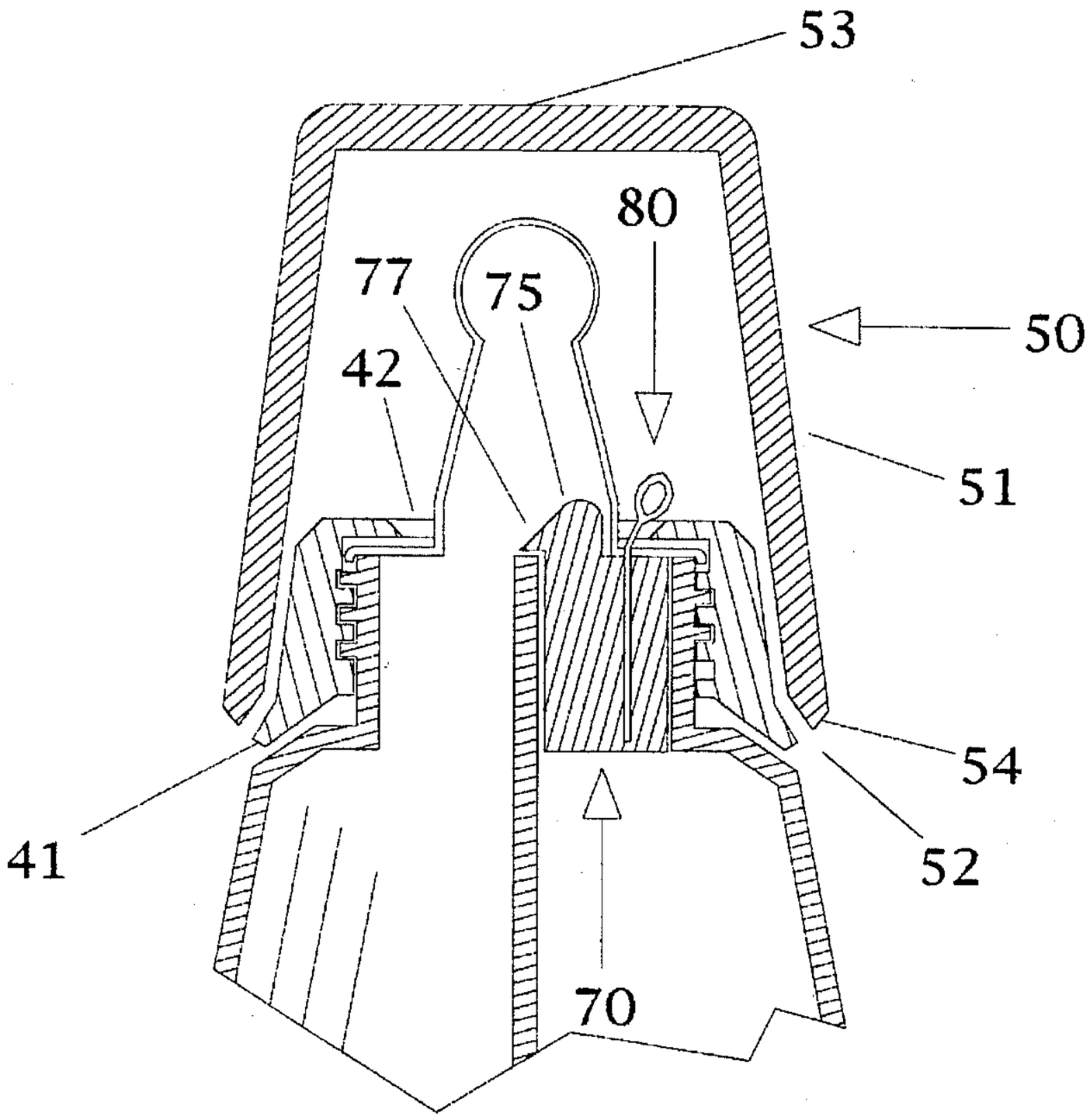
[57] **ABSTRACT**

A two-sided baby bottle having a divided fluid container is disclosed. The divided fluid container allows the storage of two fluids, such as milk and juice, in a single baby bottle. A stopper, attached to an annular flange of a flexible nipple, is inserted into the opening of the cavity on one side of the bottle, preventing passage of fluid. A threaded collar, similar that used with prior art baby bottles, presses the flange of the nipple against the rim of the bottle, making a fluid-tight seal. A ring, supported by a stem connected to an anchor inside the stopper, allows the user to remove the stopper when desired, after removal of the threaded collar. The stopper may then be inserted into the opening of the second side of the bottle. The nipple, attached to the stopper, tends to prevent the stopper from being forced all the way into either half of the bottle.

7 Claims, 2 Drawing Sheets



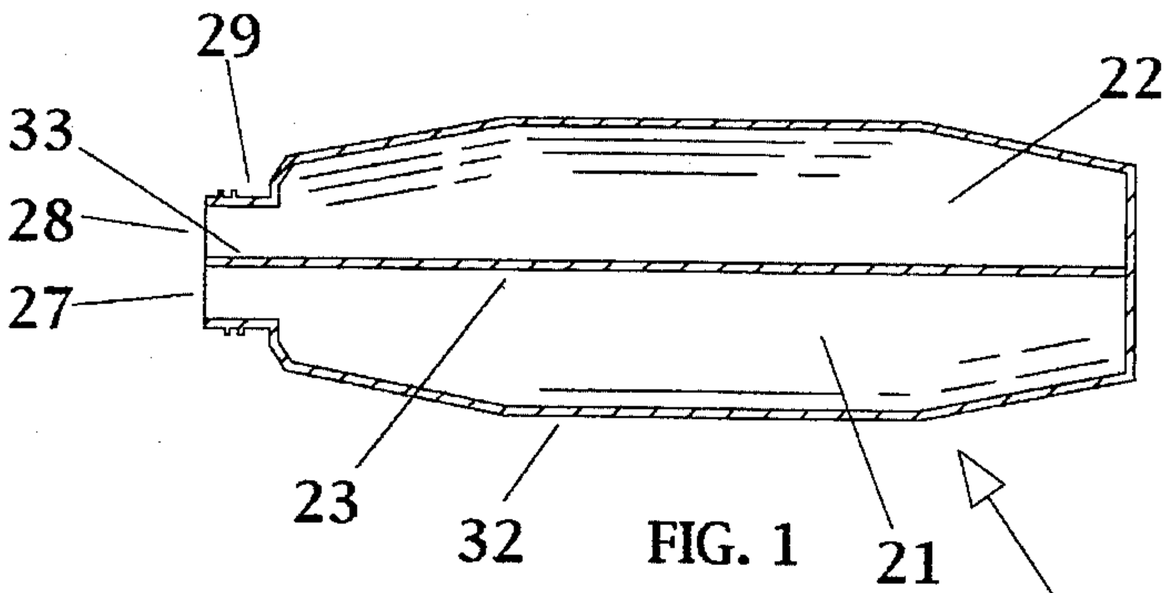


FIG. 1

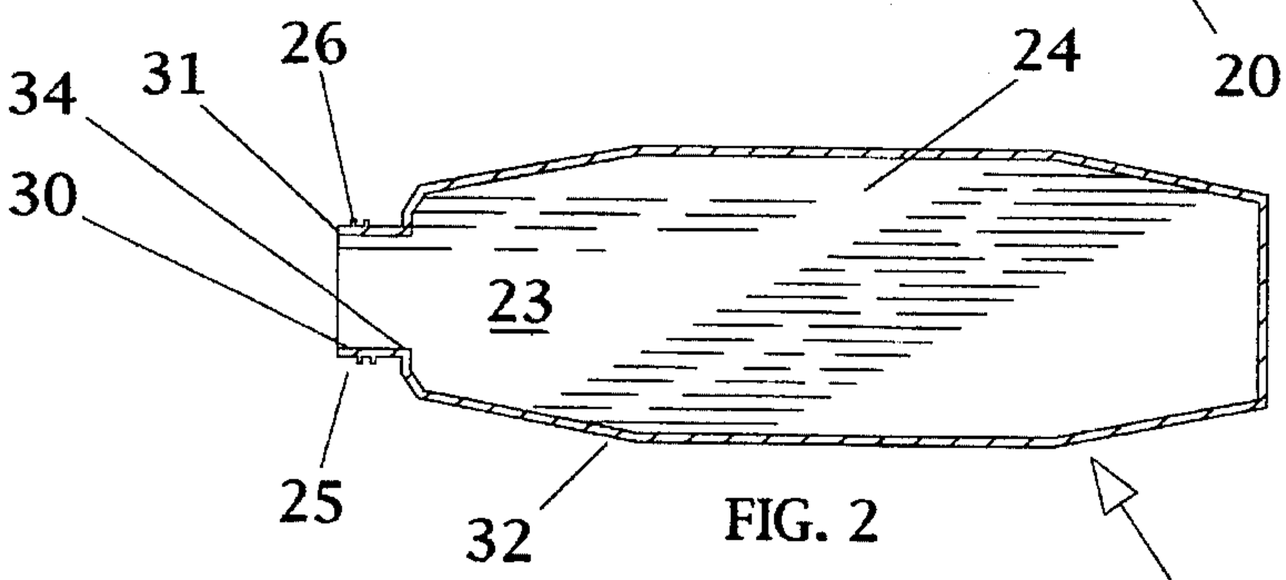


FIG. 2

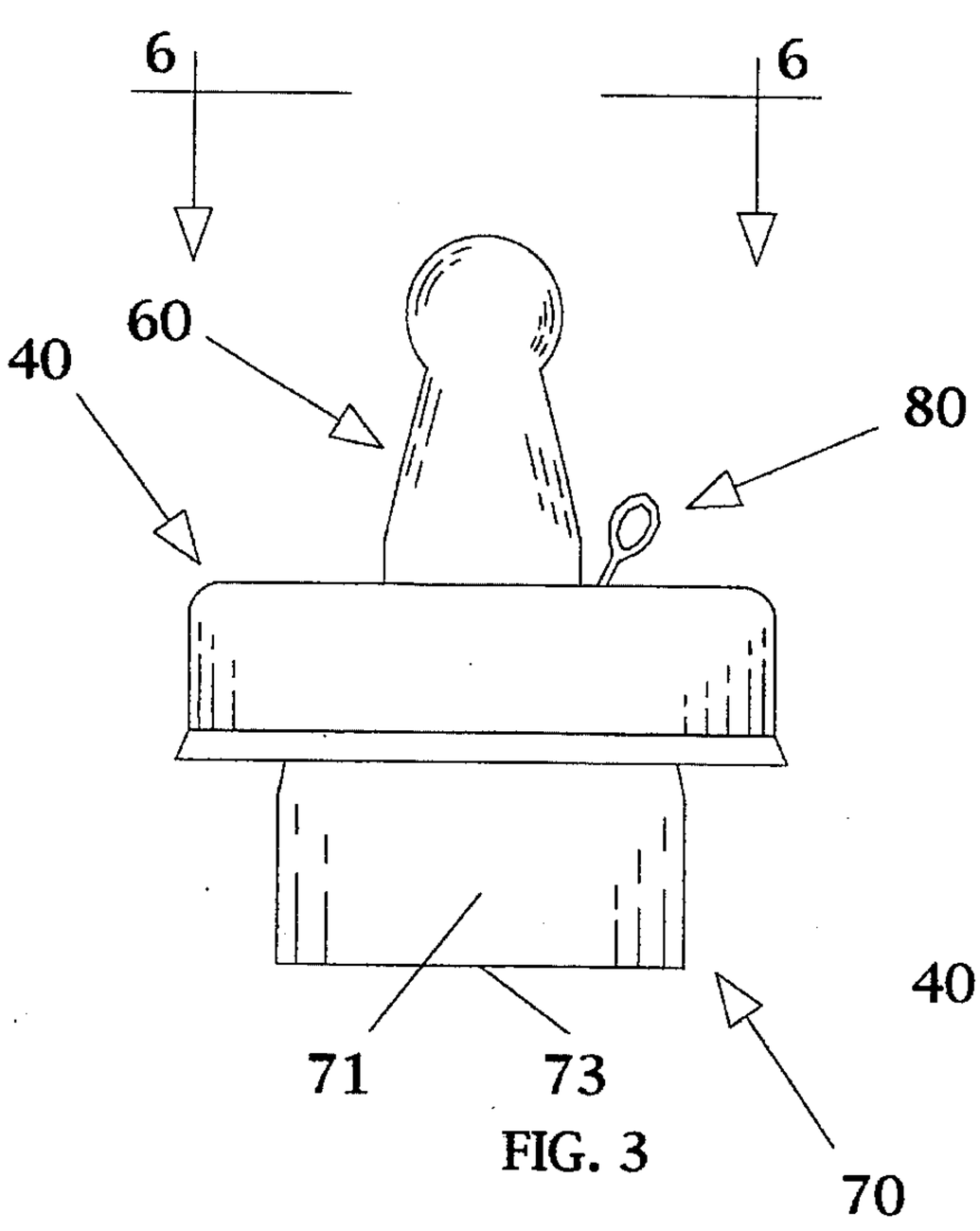


FIG. 3

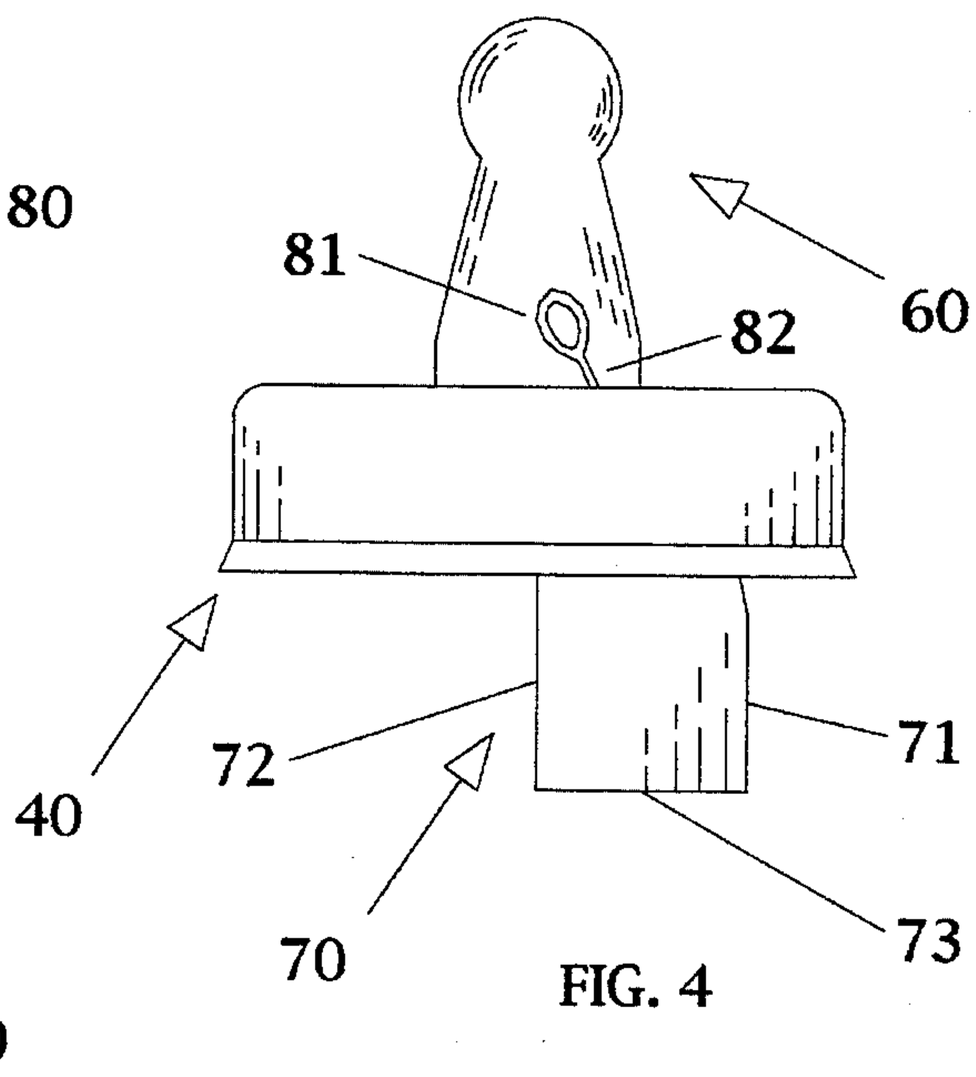


FIG. 4

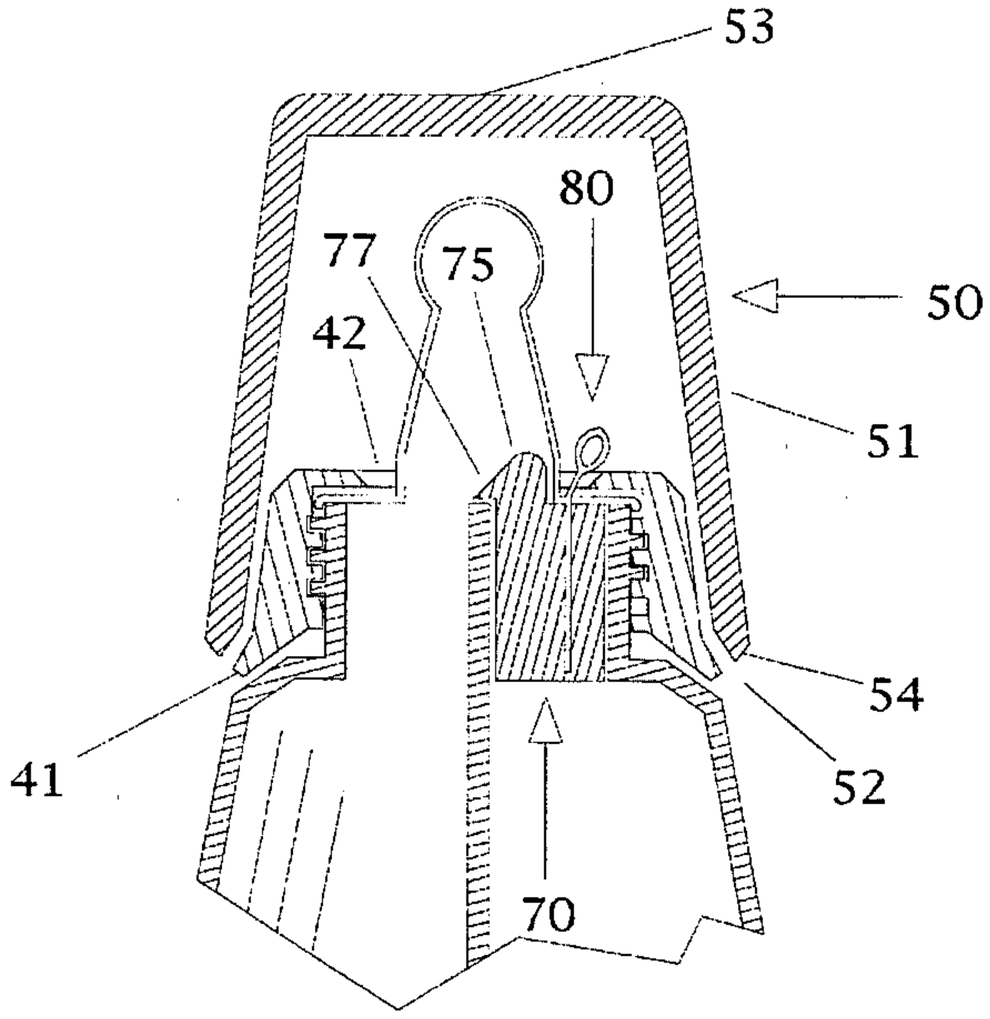


FIG. 5

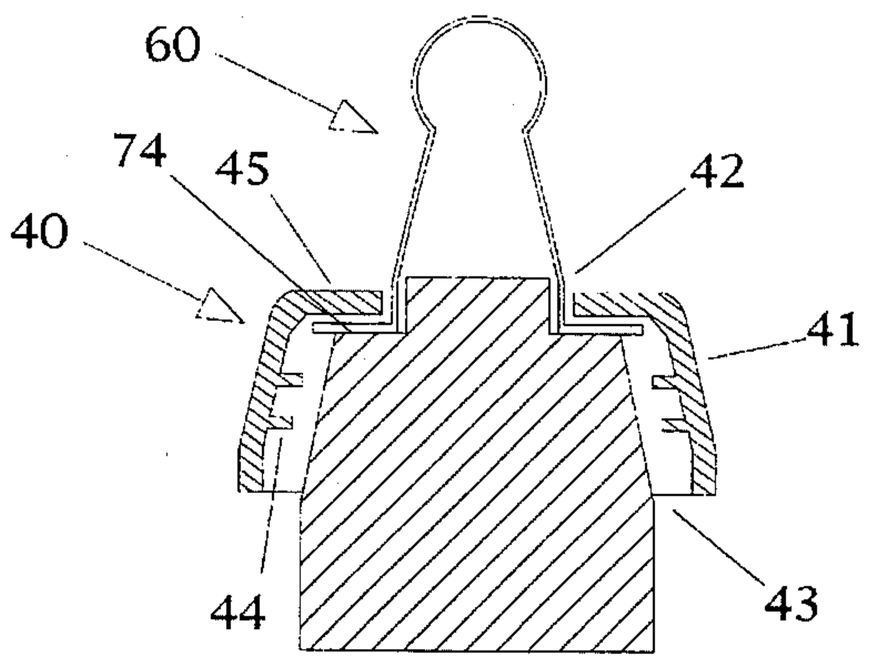


FIG. 6

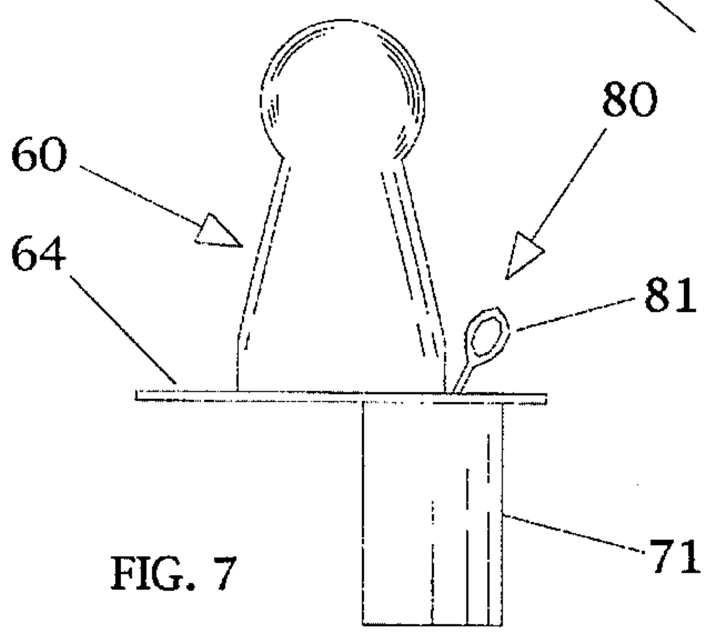


FIG. 7

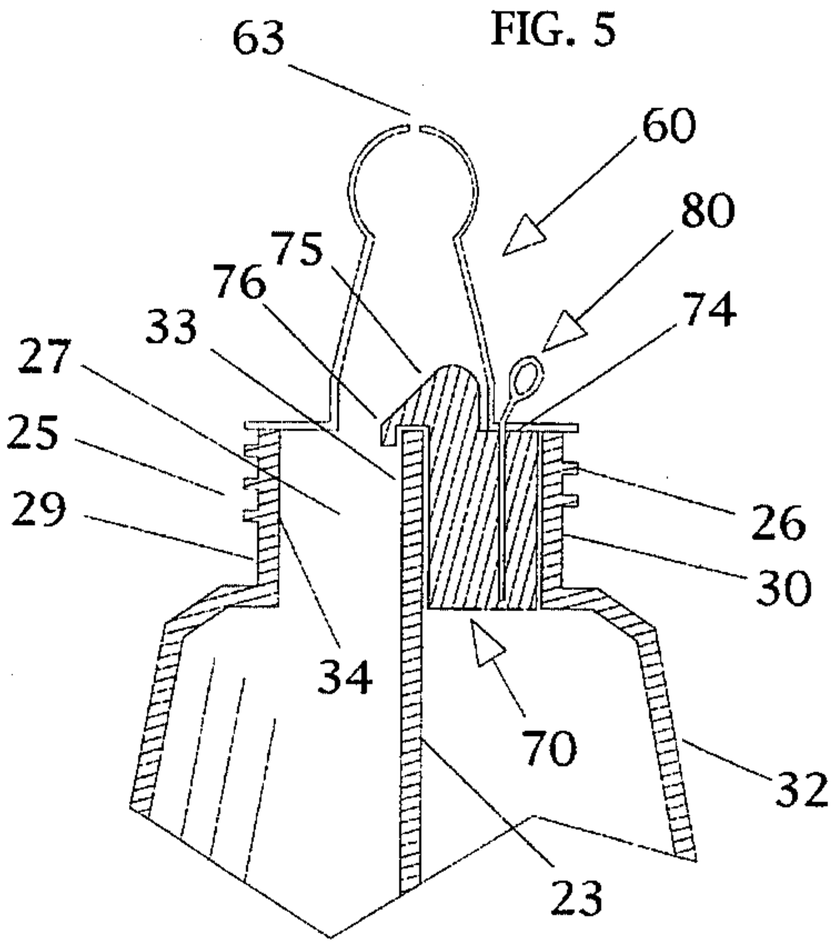


FIG. 8

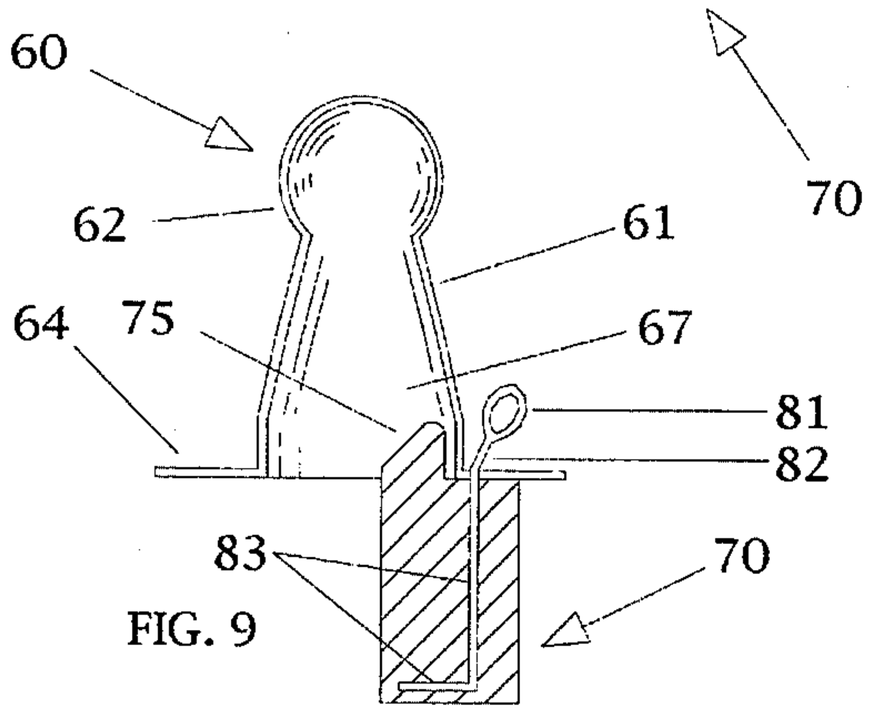


FIG. 9

BABY BOTTLE WITH TWO SEPARATE FLUID CHAMBERS

CROSS-REFERENCES

There are no applications related to this application filed in this or any foreign country.

BACKGROUND

A wide variety of baby bottles have been designed and sold. However, very few have had the vision to include structures to allow the storage of two fluids in one bottle. The advantages of having two different fluids in a single baby bottle are several: convenience, versatility, economy and practicality. Dental health may also be improved, since milk or sugar-based juices may be followed by water, which tends to wash away the decay producing substances present in milk or juice.

Of the few baby bottles which have included two cavities to carry two different fluids, all suffer from one or more problems. One problem shared by several such bottles is that the valving structure used to switch the flow to the nipple from one cavity to the other is either expensive or leaky, or both. To be commercially practical, a baby bottle must be lightweight and inexpensive. Given the generally flimsy nature of most inexpensive materials, it is likely that an inexpensive valve will leak. As a result, two-sided baby bottles having a valve typically will leak fluid from the side intended to be blocked into either the nipple, or the other side, or both.

A second problem common to prior art two-sided baby bottles is that two nipples are required, even though only one can be used at any given time. This is generally true of baby bottles having two opposed, in-line cavities, joined by their respective bases. Using one nipple for both fluids is more economical and results in a more compact design.

What is needed is a baby bottle having two fluid containing cavities and sharing one nipple. A leak-proof structure must be disclosed, so that the two fluids are not mixed as they enter the nipple, and so that they are not mixed in the bottle.

SUMMARY

The present invention is directed to an apparatus that satisfies the above needs. A novel baby bottle having two cavities, each cavity suitable for carrying a different fluid, is provided.

The baby bottle of the present invention provides:

(a) A two-sided bottle. The bottle is generally made of semi-rigid plastic, and provides:
  (a) A body portion.
  (b) A center divider. The center divider has a perimeter, which is attached to the body, thereby dividing the body into a left cavity and a right cavity. The two cavities are generally of equal volume, each having a capacity of approximately 4 to 8 ounces of liquid. And,
  (c) A cylindrical neck attached to the body. The neck additionally provides:
    (a) An inside portion and an outside portion.
    (b) A rim. The rim is generally circular.
    (c) Threads on the outside portion of the neck.

  (d) A left opening. The left opening that is generally a half-circle in cross-section, and is formed by the cylindrical neck of the bottle and the straight center divider. And,
  (e) A right opening, which is the mirror image of the left opening.

(b) A threaded collar having internal threads sized to releasably attach to the threaded outside portion of the neck.

(c) A nipple having an annular flange, the flange carried between the rim of the neck and the threaded collar.

(d) A stopper for preventing the passage of fluid from one side of the bottle. The stopper provides:
  (a) A half-round side, sized to frictionally fit against the inside portion of the cylindrical neck of the bottle.
  (b) A flat side, sized to frictionally fit against the divider.
  (c) A bottom side. The bottom side is next to the liquid, when the stopper is inserted into either the left or right opening of the cylindrical neck.
  (d) A top side. And,
  (e) A sloping top portion. The sloping portion may have a shoulder or a lip portion in contact with the center divider, the lip portion sized to fit over the center divider.

(e) A handle for pulling the stopper out of an opening in the bottle. The handle provides:
  (a) A ring, or other tab-like element, that may be easily grasped by a user, but that is difficult for a child to grasp.
  (b) A stem, attached to the ring. And,
  (c) An anchor, attached to the stem and to the stopper. And,

(f) A cover having a circular open end with a rim. The rim is incrementally greater in diameter than the outside diameter of the threaded collar. As a result, the rim is suitably sized to engage the threaded collar in a releasable, snap-on/snap-off, fit.

It is therefore a primary advantage of the present invention to provide a novel two-sided baby bottle that provides side-by-side liquid-containing cavities and is suitable for carrying 4 to 8 ounces of milk while carrying 4 to 8 ounces of juice.

Another advantage of the present invention is to provide a more economical means for a parent to carry two types of liquid than to carry two baby bottles.

A still further advantage of the present invention is to provide a more convenient means for a parent to carry two types of liquid than to carry two baby bottles.

A still further advantage of the present invention is to provide a leak-proof baby bottle capable of carrying two fluids at the same time.

A still further advantage of the present invention is to provide a two-fluid carrying baby bottle having a stopper connected to the nipple, which prevents the stopper from being pushed into the fluid cavity.

A still further advantage of the present invention is to provide a two-fluid carrying baby bottle having a ring or tab that allows the user to pull the stopper out of the opening of a fluid cavity.

DRAWINGS

These and other features, aspects, and advantages of the present invention will become better understood with regard to the following description, appended claims, and accompanying drawings where:

FIG. **1** shows a lengthwise cross-section of the bottle showing the center divider in cross-section;

FIG. **2** shows a lengthwise cross-section of the bottle showing the center divider in the same plane as the paper;

FIG. **3** shows a side-view of the :nipple with attached stopper inserted into the threaded collar;

FIG. **4** shows an end-view of the nipple with attached stopper inserted into the threaded collar;

FIG. **5** shows a cross-sectional view of the bottle, with the center divider in cross-section, the threaded collar, the cover, the nipple and the stopper,

FIG. **6** shows a cross-sectional view of the threaded collar, and the nipple with attached stopper;

FIG. **7** shows an end-view of the nipple with attached stopper, along with the ring version of the handle means for pulling the stopper out of an opening in the two-sided bottle;

FIG. **8** shows a cross-sectional view of the two-sided bottle with the nipple and attached stopper in position;

FIG. **9** shows a cross-sectional view of the nipple, attached stopper and handle of FIG. **7**.

DESCRIPTION

A two-sided baby bottle provides two fluid containing sides, allowing two fluids, such as milk and juice, to be carried in a single baby bottle and dispensed through a single nipple. A two-sided bottle **20** allows the user to store two fluids, or to dispense one fluid while the other is stored for later use. A nipple **60** carries a stopper **70**. The stopper may be used to prevent fluid flow from a cavity on a first side of the bottle, while the nipple allows fluid flow from a cavity on a second side of the bottle. Handle means **80**, carried by the stopper **70**, allows the user to easily remove the stopper. A threaded collar **40** releasably holds the nipple in place, and prevents leakage. A cover **50** keeps the nipple clean when not in use, and is easily removed for use.

As seen in FIG. **1**, the two-sided bottle **20** provides a body portion **32** that is separated into two halves by a center divider **23**. The lengthwise center divider **23**, as seen in FIGS. **1** and **2**, divides the bottle and cylindrical neck in the lengthwise direction, in that the center axis running the length of the bottle is located within the plane of the center divider. The center divider **23** typically divides the bottle into a left cavity **21** and a right cavity **22** having approximately equal volume. The neck **25** of the bottle **20** is attached to one end of the body **32** and is generally cylindrical in shape, providing a circular rim **31**, an inside portion **34** and an outside portion **29**. Threads **26** are provided on the outside portion **29** of the neck **25**, as seen in FIGS. **1**, **2**, **5**, and **8**. The center divider **23** also divides the neck **25** into a left opening **27** and a right opening **28**. The openings **27**, **28** are half-circles in shape, having a round, half-circle side **30** and a flat side **33**. The half-circle side **30** is formed by the inside portion **34** of the neck **25**, while the flat side **33** is formed by one side of the center divider **23**.

FIG. **2** shows the two-sided bottle **20** oriented so that the center divider **23** is in the same plane as the paper. The center divider is a fiat, planar surface, having the two-dimensional shape and appropriate size as determined by the cross-section of the body **32** and neck **25** of the bottle **20**. The perimeter **24** of the divider **23** attaches to the inside wall of the body **32** of the bottle **20**, making a fluid-tight connection.

FIG. **7** shows a end-view of the nipple **60** and attached stopper **70**. The nipple is well-known in the prior art, and

provides a somewhat conical side wall **61**, and a generally bulbous or spherical tip **62** having a fluid dispensing opening **63**. An annular flange **64** is circular in shape, having a concentric opening which is sized to attach to the side wall **61**.

The stopper **70** is attached to the bottom surface of the annular flange **64** of the nipple **60**, as seen in FIGS. **7** and **9**, by adhesive, or alternately by other fasteners such as a modified rivet or other suitable fastener. The means of attachment of the stopper should be calculated to prevent leakage from inside the nipple to the outside environment. The stopper **70** is formed of a flexible, fluid-proof mass, that is typically made of a rubber-like plastic. The stopper **70** provides a half circle side **71** and a flat side **72**. Therefore, taken in cross section perpendicular to an axis in the lengthwise direction of the bottle, the cross-section of the stopper is a half-circle. The stopper **70** also provides a bottom side **73** and a top side **74**.

FIG. **9** shows a cross-sectional end-view of the nipple **60** and a first version of the stopper **70**. A sloping top portion **75** extends slightly into the body **67** of the nipple **60**. The sloping top portion **75** functions by preventing liquid from pooling above the stopper **70**, and therefore reduces the chance of mixing the two liquids when the stopper is removed.

FIG. **5** shows a cross-sectional end-view of the nipple **60** and a second version of the stopper **70**. The sloping top portion **75** of the stopper **70** provides a shoulder **77** which makes a fluid-tight seal with the center divider **23** when the stopper is inserted into a neck opening **27**, **28**.

FIG. **8** shows a cross-sectional end-view of the nipple **60** and a third version of the stopper **70**. The sloping top portion **75** of the stopper **70** provides a lip **76** that is sized to fit over the center divider **23** and which provides a fluid-tight seal.

Handle means **80**, seen in FIGS. **3–5** and **7–9**, comprises a ring **81** having a stem **82** and an anchor **83**. The handle means **80**, which may alternately be embodied by any suitable type of tab or other grip, functions to allow the user to pull the stopper **70** out of the opening **27**, **28** when desired. The ring **81**, or any tab-like structure, should be sized to easy to grip between thumb and forefinger, and yet small enough that an infant is unable to grasp it. The ring **81**, stem **82** and anchor **83** may be made of wire or lightweight nylon string. As seen in FIG. **9**, anchor **83** may be wound, bent, or curled inside the stopper **70** to prevent the ring **81**, stem **81**, and anchor **83** from being accidentally pulled out of the stopper **70**.

FIG. **3** is a side-view of the nipple **60** and attached stopper **70**, along with threaded collar **40**. The threaded collar **40** is similar or identical to prior art threaded collars, and provides an annular body **41** with an upper opening **42** through which the nipple **60** protrudes. A lower opening **43** allows the neck **25** of the bottle **20** to enter.

FIG. **4** is a end-view of the nipple **60** and attached stopper **70**, along with threaded collar **40**.

FIG. **6** is a cross-sectional side-view of the nipple **60** and attached stopper **70**, along with the threaded collar **40**. The internal threads **44** of the threaded collar **40** are seen, as well as the upper opening **42** and the lower opening **43**. When the collar **40** is threaded onto the neck **25**, an end plate **45** holds annular flange **64** of nipple **60** against rim **31** of neck **25**.

FIG. **8** is a cross-sectional side-view of the nipple **60**, attached stopper **70**, and two-sided bottle **20**. The stopper is inserted into the right opening **28** of the two-sided bottle **20**, leaving the left opening **27** open, allowing fluid to flow from the left cavity **21** to the nipple **60**.

FIG. **5** is similar to FIG. **8**, but with the addition of the threaded collar **40** and the cover **50**. Cover **50** is similar or the same as prior art covers, and provides a conical wall **51**, a circular open end **52**, and a circular closed end **53**. A rim **54** allows the cover to be snapped-on and snapped-off the threaded collar in a manner that is well-known.

To use the baby bottle of the invention, the user first removes the cover **50**. The user then unscrews the threaded collar **40** and removes that collar. By gently pulling on handle **80**, the user is able to remove stopper **70** from the opening **27** or **28**. A first fluid, such as milk, is then added to the right cavity **22** by means of the right opening **28**. A second fluid, such as juice, is then added to the left cavity **21** by means of the left opening **27**. The stopper **70** is then gently forced into either the left opening **27** or the right opening **28**. This action results in the placement of the annular flange **64** of the nipple **60** on the rim **31** of the neck **25** of the two-sided bottle **20**. The threaded collar **40** is then screwed back on. End plate **45** causes flange **64** to make a fluid-tight seal with rim **31** of neck **25**. The bottle may then be given to a baby or the cover **50** snapped into place.

The previously described version of the present invention has many advantages, including structural means to carry two fluids in a compact and economical manner in one baby bottle. The bottle of the invention also provides the advantages of a stopper which allows a water-tight seal to be formed in one opening of the bottle, while allowing fluid to be removed from the other opening. The two-sided bottle of the invention also provides the advantage of a handle means, typically comprising a graspable ring, for removal of the stopper. The bottle of the invention also provides the advantage of a one-piece nipple and stopper, so that the stopper cannot be inserted all the way into the cavity **21**, **22**, since it is attached to the nipple.

Although the present invention has been described in considerable detail and with reference to certain preferred versions, other versions are possible. For example, the ring **81** may be replaced by a tab or some other graspable handle-like structure. The shape and exact dimensions of the body of the bottle, the threaded collar, cover and nipple all may be varied. If the dimensions of the two-sided bottle are varied, the stopper will also, naturally, vary to accommodate the openings in the bottle. Therefore, the spirit and scope of the appended claims should not be limited to the description of the preferred versions contained here.

What is claimed is:

1. A baby bottle, comprising:

(a) a two-sided bottle comprising:
  (a) a body;
  (b) a lengthwise center divider having a perimeter, the perimeter attached to the body, thereby dividing the body into a left cavity and a right cavity; and
  (c) a cylindrical neck, divided by the lengthwise center divider, and attached to the body of the two-sided bottle, comprising:
  (a) an inside portion and an outside portion;
  (b) a rim;
  (c) threads on the outside portion;
  (d) a left opening; and
  (e) a right opening;

(b) a threaded collar having threads sized to releasably attach to the threaded outside portion of the neck;

(c) a nipple having an annular flange, the flange carried between the rim of the neck and the threaded collar;

(d) stopper means, attached to the nipple and removably carried by either of the openings in the cylindrical neck, for preventing the passage of fluid from one side of the bottle; and

(e) handle means for pulling the stopper means out of either of the openings in the neck of the bottle.

2. The baby bottle of claim **1**, further comprising:

(a) a cover having a circular open end with a rim incrementally greater in diameter than the outside diameter of the collar, whereby the rim is suitably sized to engage the threaded collar in a releasable fit.

3. The baby bottle of claim **1**, in which the stopper means comprises a flexible, fluid-proof mass, additionally comprising:

(a) a half circle side, sized to frictionally fit against the inside portion of the cylindrical neck of the bottle;

(b) a flat side, sized to frictionally fit against the center divider;

(c) a bottom side;

(d) a top side; and

(e) a sloping top portion having a lip sized to fit over the center divider.

4. The baby bottle of claim **3**, in which the handle means comprises:

(a) a ring;

(b) a stem, attached to the ring; and

(c) an anchor, attached to the stem and to the stopper means.

5. The baby bottle of claim **1**, in which the stopper means comprises a flexible, fluid-proof mass, additionally comprising:

(a) a half circle side, sized to frictionally fit against the inside portion of the cylindrical neck of the bottle;

(b) a flat side, sized to frictionally fit against the center divider;

(c) a bottom side;

(d) a top side; and

(e) a sloping top portion having a shoulder which makes a fluid-tight seal with the center divider.

6. The baby bottle of claim **1**, in which the stopper means comprises a flexible, fluid-proof mass, additionally comprising:

(a) a half circle side, sized to frictionally fit against the inside portion of the cylindrical neck of the bottle;

(b) a flat side, sized to frictionally fit against the center divider;

(c) a bottom side;

(d) a top side; and

(e) a sloping top portion which extends slightly into a body portion of the nipple, thereby preventing the liquid from pooling above the stopper means.

7. A baby bottle, comprising:

(a) a two-sided bottle comprising:
  (a) a body;
  (b) a lengthwise center divider having a perimeter, the perimeter attached to the body, thereby dividing the body into a left cavity and a right cavity; and
  (c) a cylindrical neck, divided by the lengthwise center divider, and attached to the body of the two-sided bottle, comprising:
  (a) an inside portion and an outside portion;
  (b) a rim;
  (c) threads on the outside portion;
  (d) a left opening; and
  (e) a right opening;

(b) a threaded collar having internal threads sized to releasably attach to the threaded outside portion of the neck;

(c) a nipple having an annular flange, the flange carried between the rim of the neck and the threaded collar,

(d) stopper means, attached to the nipple and removably carried by either of the openings in the cylindrical neck, for preventing the passage of fluid from one side of the bottle, comprising a flexible, fluid-proof mass, which comprises:

(a) a half circle side, sized to frictionally fit against the inside portion of the cylindrical portion of the neck of the bottle;

(b) a flat side, sized to frictionally fit against the center divider;

(c) a bottom side;

(d) a top side; and

(e) a sloping top portion having a lip sized to fit over the center divider;

(e) handle means for pulling the stopper means out of either of the openings in the cylindrical neck of the bottle, comprising:

(a) a ring;

(b) a stem, attached to the ring; and

(c) an anchor, attached to the stem and to the stopper, and

(f) a cover, comprising:

(a) a conical wall;

(b) a circular closed end, attached to the conical wall; and

(c) a circular open end with a rim incrementally greater in diameter than the outside diameter of the collar, whereby the rim is suitably sized to engage the threaded collar in a releasable fit.

* * * * *